

English Ivy

Hedera helix 'Baltica'

Hedera helix 'Pittsburgh'

Hedera helix 'Star'

Hedera hibernica 'Hibernica'

ARALIACEAE

**Class C Non-Regulated Noxious Weed
Control Recommended**

Legal Status in King County: The four cultivars of English ivy listed above are Class C noxious weeds according to Washington State Noxious Weed Law RCW 17.10 (non-native species harmful to environmental and economic resources that landowners may be required to control based on local priorities). The King County Noxious Weed Control Board does not require property owners to control English ivy but recognizes the four cultivars sold as ornamental plants as invasive and encourages landowners to remove them when possible and to choose alternatives for their landscaping needs.

BACKGROUND INFORMATION

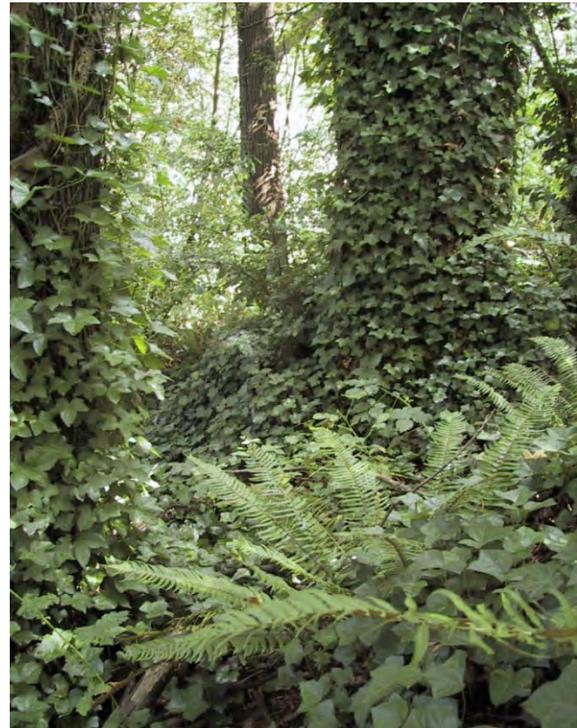
Impacts and History

- Native to Eurasia and introduced to North America by European settlers, it is cultivated as a groundcover in the Pacific Northwest.
- Considered an invasive plant in most of western Oregon, California, and Washington. Also considered an invader of forests in the Mid-Atlantic States (Thomas 1998).
- King County has records of this plant as far back as 1889, listed as *Hedera helix* ssp *hibernica* (CPNWH 2018).
- An analysis by Clarke et al. (2006) showed over 80 percent of invaded sites were identified as *Hedera hibernica*, demonstrating that this is the dominant invading species in the PNW area (Green et al 2013).



English ivy spreads on ground and up trees. Photo by S. Shaw.

- Further research showed *H. helix* (diploid 2n) is the more common invader on the east coast and *H. hibernica* (tetraploid 4n) is more common on the west coast of North America, mirroring the species' native distribution in maritime (*H. hibernica*) versus continental (*H. helix*) climates of England (Green et al 2013, Metcalfe 2005). There is variation in how the types of ivy are divided, either split into subspecies of *H. helix* or split into separate species, *H. helix* and *H. hibernica*.
- In natural areas, it outcompetes native vegetation and dominates the forest floor, the shrub layer, and the canopy.
- Can create 100 percent cover and smother ground vegetation. Reduces light availability by growing over shrubs and small trees (Okerman 2000).
- Adds substantial weight to trees, which may increase susceptibility to blow-over or tip-over, especially during winter storms (Clarke et al 2006).
- Forms thick mats that can accelerate rot and deteriorate structures.
- Takes water and nutrients away from other plants.
- Provides hiding areas for rats and other vermin.
- Serves as a reservoir for bacterial leaf scorch (*Xylella fastidiosa*), a plant pathogen that is harmful to native trees such as elms, oaks, and maples (EFSA PLH 2015).



Serious impacts of ivy include its ability to overwhelm trees by adding weight and weakening the tree, and smothering native plants on the ground.

Description

- Evergreen trailing or climbing woody vine that forms dense carpets on the ground and also grows up tree trunks and other vertical structures.
- Climbs up to 90 feet by clinging aerial roots that attach to the bark of trees, brickwork, and other surfaces by way of numerous, small root-like structures, exuding a glue-like substance. These rootlets don't absorb nutrients or water (Okerman 2000; Melzer et al. 2011).
- Trailing vines form a dense ground cover.
- Flowers in the fall (Okerman 2000).
- Inconspicuous five petal greenish-white fleshy flowers grow in umbrella-like clusters on a long stem.
- Berries are round and deep bluish-black when ripe with a fleshy outer skin enclosing 2-5 hard, stone-like seeds.
- Berries mature in the early spring.
- Leaves thick, dark green, and variable in shape with distinct juvenile and mature growth stages with different leaf types.
- Juvenile leaves are dull green with distinct light veins, deeply lobed with 3 to 5 lobes.
- Mature leaves are glossy green and can be roundish to angular and are not lobed.



Aerial rootlets of ivy allow it to climb but don't absorb water or nutrients



Dark blue-black berries of ivy are toxic to people but edible to birds.

- Stems with mature leaves lack aerial roots, are non-climbing, erect, and shrubby.



Juvenile leaves (left) are often lobed with 3 to 5 points with prominent white veins, mature leaves (right) are more round with little or no lobes. Mature leaves accompany the plant's flowers and subsequent berries.

- Leaves arranged alternately along the stem.
- Older vines can reach over 90 feet long with stems one foot in diameter (Waggy 2010).
- Long-lived species; one plant reported to be 400 years old (Ewers 1992).

Toxicity

- Entire plant somewhat toxic and includes glycosides (Peterson 2011; Spoerke 1990).
- Symptoms of poisoning include vomiting, diarrhea, nervous conditions, and dermatitis in sensitive individuals. The sap can cause contact dermatitis in sensitive individuals (DiTomaso et al 2013).



Uncontrolled ivy has negative impacts on built infrastructure like roads and signs as well as natural resources.

Habitat

- Thrives in open forests, forest edges, fields, hedgerows, coastal areas, salt marsh edges, and other upland areas, especially where some soil moisture is present.
- Shade tolerant but adapts to higher light levels with maturity.
- Evidence shows ivy demonstrates a preference for coniferous forests over deciduous forest but invades both (Chance et al 2016).
- Can grow in a wide range of soil conditions, from relatively dry to moist.
- In Washington state, grows at elevations up to about 3000 feet (900 meters) (Anzinger et al. 2008).

Reproduction and Spread

- During juvenile stage, spreads vegetatively from stem and root fragments.
- Vines form roots at the nodes when in contact with moist soil, leading to the formation of a dense mat (Okerman 2000; Melzer et al. 2011).

- Roots vigorously re-sprout, meaning that a broken root left in the soil will almost certainly grow a new stem.
- Once mature (after 10 years), also spreads by seeds that are found in berry-like fruits dispersed by birds.
- Seeds are dispersal by birds, especially starlings, who readily consume the berries (Okerman 2000).
- Once eaten, the seeds can be spread great distances by birds away from established ivy patches, creating new satellite populations (Kalkhoven and van Ruremonde 1991).
- Plant has ability to photosynthesis during warmer days during winter months while most other deciduous trees are dormant resulting in grow rapidly up trees (Okerman 2000).
- In common garden experiments, *H. hibernica* was larger and more frequently reproductive than *H. helix* (Green et al 2013). However, both *H. helix* and *H. hibernica* spread vegetatively along the ground and by climbing on natural and constructed structures.

Local Distribution

- Found throughout King County; most abundant in urban and suburban forests, but also present in remote areas.

CONTROL INFORMATION

Integrated Pest Management

- The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic, and social impacts.
- Use a multifaceted and adaptive approach. Select control methods which reflect the available time, funding, and labor of the participants, and land use goals and values of the community and landowners. Management will require dedication over several years and should allow for flexibility in method as appropriate.

Planning Considerations

- Survey area for weeds, set priorities, and select best control method(s) for the site conditions and regulatory compliance issues (refer to the [King County Noxious Weed Regulatory Guidelines](#)).

- Control practices in critical areas should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Any disturbed areas need to be stabilized for erosion and sediment control.
- Erosion and sediment control (ESC) means any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave the site or enter wetlands or aquatic areas. Refer to the [King County Surface Water Design Manual, Appendix D](#) for ESC Standards.
- Minimizing soil disturbance also reduces germination of weed seeds.
- Generally, work first in least infested areas, moving towards more heavily infested areas. This allows for natural re-vegetation to occur, which helps sustain the control work over time. Also, controlling small, satellite populations has a bigger impact on reducing the spread to new areas.
- Properly dispose of all parts of the plant (see Disposal Methods section below).
- If possible, control before plants are flowering to prevent seeding.

Early Detection and Prevention

- Do not plant English ivy outdoors and do not dump ivy plants in natural areas.
- Monitor forests for new infestations at least once a year in order to control populations while they are still small.
- Manually control new infestations as soon as possible, removing all roots.
- Monitor the control site and remove any plants returning from root fragments.
- Dispose of plant parts according to Disposal Methods section below.

Manual Control

- Physical removal of English ivy vines and roots is often the most effective method of control.
- Gloves and protective clothing are recommended since the sap can cause a reaction in some people.
- Sampling work conducted by The Nature Conservancy (TNC) indicates that a manual pull, when done with careful consideration, can reduce ivy cover from 80 percent cover or more to 2-6 percent cover one year later without follow up treatment, and to 1-2 percent cover with a single follow up (Stoll 2005 TNC).

For ivy growing on the ground:

- Most effective control method is pulling or digging out plants and removing the roots during fall to spring when the ground is moist.
- For areas with extensive ivy on the ground, use a method called an ivy roll. To start mark the top perimeter by cutting a line in the ivy mat, pulling apart each side of the mat as you go. Line a group of people along that line. Start to lift the mat and pull the cut edge of the vines, rolling the ivy mat over itself.
- Vines may re-root if left on soil, so pile them up or discard with yard waste.
- Ivy vines and roots can be balled up or rolled up like a carpet and left to rot in place. To prevent stems from re-rooting, place ivy balls on a layer of overlapping branches, a pallet or other elevated surface.



For areas with extensive ivy on the ground have a group of people perform an ivy roll.

For ivy growing on trees:



Cut ivy vines from trees at ground level and up 3-4 feet; be sure to check for regrowth on tree several times a year. Clearing ivy six feet from tree trunk should prevent it from growing back up the tree for at least a year.

- Separate the climbing vines from their roots. Ivy can only grow from roots in soil (it cannot root itself to tree bark).
- Kill the upper vines by cutting and removing all the stems from the ground up to manageable height.
- Pry the lower vines off the tree and pull out of the ground. Try to minimize damage to tree bark. Use of a stout screwdriver or pry bar may be useful.
- Clear the ivy on the ground at least six feet from the base of the tree to prevent it from immediately growing back up the tree. Apply mulch to the cleared area (mulch shouldn't be touching the tree trunk).
- Annual monitoring and subsequent removal are required to keep ivy from growing up trees.

Smothering

- Apply at least eight inches of mulch directly over ivy growing on the ground or cut and remove the ivy before adding the mulch. Laying out cardboard before applying mulch may increase the effectiveness.
- Keep mulch in place for at least two years before attempting to replant. This is not an option for steep slopes or areas where the mulch can be easily washed away.

Mechanical Control

- English ivy can be mowed or cut but this is generally not recommended due to its ability to regenerate following cutting. Mulching after a cut will reduce regeneration.

Chemical Control

- For control of large infestations, herbicide use may be necessary.
- Apply herbicide on warm, dry days when winds are low. Check label for specific information on wind and rain guidelines.
- Both selective and non-selective herbicides are effective. However, if there is grass present on site, using a selective broadleaf herbicide will improve long-term control because competitive grass cover will reduce weed seed germination and re-growth.
- The waxy layer on the leaves appears to limit many herbicides from effectively permeating the leaves. Use of a surfactant may improve results.
- Chemical control in winter or very early spring may minimize off-target damage to dormant native plants and has been found to be effective if weather conditions are mild. Winter applications may take a long time to show their effect (Personal communication D. Sorensen).

- There is conflicting information regarding timing in the literature, some resources suggest warm spells in winter are the best time, while other resources recommend treatment in summer to fall (July-Sept).
- Mechanically wounding the plants such as with a weed whacker prior to spraying may increase the effectiveness of herbicides.

Precautions:

- Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label of the product being used. **Follow all label directions.**
- For herbicide use in critical areas and their buffers, certain restrictions apply depending on the site and jurisdiction. In unincorporated King County, refer to the [King County Noxious Weed Regulatory Guidelines](#) for a summary of current restrictions and regulatory compliance issues. Elsewhere, check with the local jurisdiction.
- For your personal safety, at a minimum wear gloves, long sleeves, long pants, closed toe shoes, and appropriate eye protection. Follow label directions for any additional personal protection equipment needed.

Specific Herbicide Information

- Pacific Northwest Weed Management Handbook recommends glyphosate (at least 41 percent active ingredient) at a rate (3 lb ae or 4 lb ai).
- City of Portland, in an unpublished study, found that fall treatment with glyphosate with a surfactant or summer treatment with a tank mix of glyphosate and triclopyr with a surfactant showed the largest declines in ivy cover three years after treatment (Query and Finney 2012).
- More recent work at City of Portland Parks obtained good results controlling ground ivy with a mixture of 4 percent glyphosate, 2 percent triclopyr, and 2 percent surfactant in the summer or fall for 2 to 3 years. Ideal times to spray were dry, warm days over 65 degrees with a few days of dry weather forecasted (Query and Finney 2012).
- Cut stem application on vines is also effective. Cut each vine stem close to the ground and treat freshly cut surfaces (preferably within 5 minutes) with a 33 percent or greater solution of triclopyr amine or glyphosate mixed in water (the concentration will vary by product, so follow label instructions for cut stem application carefully).
- Cutting vines using a powered hand-held brush cutter just before treatment followed by a 25 percent solution of glyphosate also provided control (Stoll 2005 TNC).

- The Green Seattle Partnership reports excellent control with 2 to 5 percent solution of triclopyr ester (2.67oz/g) plus 0.25 to 0.5 percent nonionic surfactant. Late summer treatments showed the greatest reduction in cover the following year (GSP 2019).

The mention of a specific product brand name in this document is not, and should not be construed as an endorsement or as a recommendation for the use of that product. Chemical control options may differ for private, commercial, and government agency users.

For questions about herbicide use, contact the King County Noxious Weed Control Program.

Biological Control

- Currently, there are no biological control agents for English ivy. However, although not a true biocontrol agent because they are not selective and will eat many plants, goats can be trained to defoliate ivy and in one case resulted in a significant reduction of ivy cover after two years of short duration grazing (Ingham and Borman 2010).

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Native and/or Desirable Vegetation

- Pull or dig out ivy plants, removing all of the roots, during fall to spring when the ground is moist. Protect native and other desirable vegetation.
- Cut and remove ivy vines from the base of all trees up to about chest height, leaving the upper vines to dry out and die back on their own.
- Keep ivy vines from re-climbing by clearing ivy at least six feet away from the tree trunk and any exposed roots or buttresses and mulching the cleared area.
- If the area is level and there are no other plants growing with the ivy, you can apply at least eight inches of mulch either directly over the ivy, or cut and remove the ivy before spreading the mulch to suppress re-growth. Laying out cardboard before applying mulch may increase the effectiveness.

Large Infestations/Monocultures

- Large areas can be controlled manually or with a chemical application, or with a combination of methods, depending on the resources available and the site conditions.
- Physical removal of ivy vines and roots is often the most effective method of control but it is highly labor intensive. Focus first on removing ivy from the base of the trees and then work on removing the ivy along the ground, starting in the

least infested areas first. Make sure to protect existing native vegetation as much as possible (see Manual Control section above for instructions).

- Chemical treatment may be the most cost-effective approach for large monocultures of ivy. Also, this method will reduce trampling and soil disturbance so may be more appropriate for sensitive forest soils or steep slopes (see Chemical Control section for details and instructions).
- A combination of physical removal and chemical control may be a good approach for large infestations, with initial chemical treatment followed by monitoring and hand removal of any surviving stems and seedlings. Mulch can be applied after treatment to reduce new ivy growth.

Control in Riparian Areas

- Additional permits may be required for control of infestations in riparian areas. See the [Noxious Weed Regulatory Guidelines](#) for more information or contact your local jurisdiction.
- In some cases, the cleared area will need to be replanted with native or non-invasive vegetation and stabilized against erosion. Refer to the [King County Surface Water Design Manual, Appendix D](#) for ESC Standards.
- Focus on manual removal for small infestations if possible.
- For larger riparian areas where herbicide use is warranted, spray using low pressure and large droplet size to reduce drift. If herbicide could potentially drift into the water or a wetland area, use only approved aquatic herbicides and surfactants after obtaining necessary permits.

Control Along Road Rights-of-Way

- Before removing ivy from trees, make sure the trees are healthy and won't create a safety hazard for traffic. Hazard trees should be carefully removed by an arborist or tree care professional.
- Small ivy infestations can be physically removed using the methods described in the Manual Control section.
- If site conditions allow it, dense areas of ivy on the ground can be sprayed with a systemic herbicide (see Chemical Section above for recommendations), taking care not to spray beneficial vegetation.
- In grassy areas, use a selective broadleaf herbicide such as triclopyr; if a non-selective herbicide is used, such as glyphosate, re-seed grass or revegetate after control is completed.

Disposal Methods

- Do not dump ivy in a green space or park because plants can re-grow from root and stem pieces if not monitored closely.
- If there is a place where ivy piles can be monitored, vines and roots can be balled up or rolled up like a carpet and left to rot. Turning the pile every few months or so can help keep stems from re-rooting. Making piles causes dead spots on the ground and can allow some ivy to re-root, if the pile is not turned. Piling the ivy on a tarp or other surface can be less risky but it will rot more slowly and you will have to move the ivy later to retrieve the tarp.
- To help ivy stems dry out without rooting, build a raft or crib with crisscrossing (overlapping) sticks or branches or use a wooden pallet or similar elevated surface that allows air to circulate under the ivy stems. Keep the piles relatively small to speed up the drying process.
- Once the stems are dried out, they can be left to rot in place.
- Smaller amounts of ivy can also be discarded in municipal yard waste bins.

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